
Status & Remarks

The application presently contains the following claims:

<i>Independent Claim #</i>	<i>Dependent Claim #s</i>
21	1-20, 22-24, 49-51
25	26-48, 52-54

Claims 21 and 25 are amended. Support for this amendment can be found with reference to paragraph [0009] of the application as originally filed.

Claims 49-54 are newly added. Support for these newly added claims can be found with reference to paragraph [0057] of the application as filed.

35 U.S.C. §102

There are no pending rejections under this section, the previous office action response having been successful in overcoming the predicates for the previous rejections under this section.

35 U.S.C. §103

The examiner has rejected all claims (1-48) under this section, subparagraph (a) as being unpatentable over Rowley U.S. Patent No. 5,861,200 ('200) in view of Rowley U.S. Patent No. 6,270,125 ('125). The examiner has initially characterized Rowley '200 as disclosing a process for joining an inner crosslinked polymeric tube within an outer metallic tube to form a metallic-encased polymeric tube. The examiner has noted that Rowley '200 does not explicitly disclose limitations of the connecting means as claimed. The examiner has also initially characterized Rowley '125 as disclosing a connecting means (20) having the claimed geometry and function of which FIGS. 1-2 of the instant application are identical with regard to the connecting means (20). By combining the two references, the examiner has tentatively concluded that it would have been obvious to one of ordinary skill in the art at the time the invention was made to join an inner polymeric tube having an outer metallic tube as disclosed by Rowley '200 to another of such tube configuration with a connection means taught by Rowley '125 in order to realize the instant invention.

The applicant's attorney would respectfully request that the examiner review his rejections under this section in light of the following arguments, the thrust of which is that the examiner has generalized to a degree which is impermissible in light of the teachings of each of the respective Rowley inventions. In order to assist the examiner, a brief review of the teachings of each previous Rowley invention will be provided.

Rowley '200 does teach a combination tube in which there is an inner polymeric tube within a thin wall copper sleeve, which does capitalize on the benefits of plastic tubing with the shape retention properties of copper tubing. (See col. 5, lines 18-24). However, in every embodiment of the '200 patent, at least one end of the polymeric tubing is compressively formed into a one-piece end which can be used to connect directly to a valve or is belled without thinning the wall thickness to form a belled end also for use in connecting to a valve. The end-use application envisioned within the '200 patent was that for a pedestal sink in which the water lines are visible. As clearly stated in the Summary of the Invention in col. 3, lines 17-23, the teaching was for a work piece with one-piece formed/shaped ends encased in thin walled copper tubing.

"In accordance with the present invention, there is provided a method
for processing polymers which will enable a work piece to have one-piece

formed/shaped ends from a single piece of tubing, the tubing being encased by thin-walled tubing thereby enabling the resulting conduit to be bent into various geometric shapes without tubing benders.”

The teaching of this technology was to encase polymeric tubes which had at least one (or two) end(s) formed into either sealing surfaces or belled ends and which provided a structured look of metallic tubing. This technology of forming one-piece tubing ends from the tubing walls traced its origins back to 1993 for the concept of belling ends from the walls of the tube without thinning the walls (see U.S. Patent No. 5,527,503), and back to 1978 for compressively formed sealing ends which were formed from the walls of the tube (see U.S. Patent No. 4,316,870).

In every embodiment of the invention, the goal was to capitalize on the unitary end formation which eliminated the possibility of leaks due to the formation of the end by using a technology such as spin welding which used frictional heat to “weld” an end onto a tube. This process inherently produced weak spots in the final product at the “weld” and the one-piece end formation from the walls of the tube was a patentable improvement over the prior art. The ‘200 patent which the examiner has relied upon was the culmination of that series of technologies which continued to build on end formation on polymeric tubes by making them more aesthetically pleasing. However, it is misleading to characterize the ‘200 patent as teaching “a process for joining an inner crosslinked polymeric tube within an outer metallic tube to form a metallic-encased polymeric tube” ***without stating that any encased tube would also have an end which was formed from the wall of the tube, the processing involving belling or compressive sealing surface formation.***

The examiner has attempted to supplement the deficiencies of Rowley ‘200 by combining the teachings found in Rowley ‘125. While this patent does illustrate connectors which may be used to join polymeric plumbing tubes, the physical geometry of which is remarkably similar to those illustrated in the instant invention, a closer reading of this patent clearly illustrates that the thrust of the ‘125 invention is that these connectors are to be made of the same polymeric material as that of the tubes. This is clearly shown in several sections of the patent.

In col. 2, lines 1-8, the ‘125 patent states

“If a polymeric connector could be formed from the same material as the straight runs of the tubing in a tubing assembly and be attached to the tubing ends using the same inserts and compressive elements used to attach the straight runs to each other, the construction of such tubing assemblies would be greatly enhanced, as will be the aesthetic appeal of the product. This is an advantage provided by the present invention.”

Farther along in that same column, namely lines 43-47, the '125 patent further states.

"In the preferred embodiments, the connector is molded unitarily from a polymeric material, especially a crosslinkable polymeric material. Most particularly, a preferred material is polyethylene."

In col. 4, lines 24-32, the '125 patent teaches the following.

"However, it has been unknown in the prior art to be able to form a connector from the same material as the tubes while imposing a permanently formed feature, such as an angular diversion of the connector internal conduit, an intersection or a reduction of diameter, while retaining the ability to join the connector to the tubes in a leak-free manner by compressively deforming the arm ends of the connector onto an insert 20. This is precisely the achievement of the present invention."

Still further, in col. 5, lines 54-58, the '125 patent teaches the following.

"To make the tubing assembly as uniform as possible in physical properties and appearance, it will be highly preferred, although not required to use the identical PEX or other conforming material for the tubes 12,14 which are joined to the connector 112 at the arm ends 116."

What is clearly envisioned is a connector system in which the connector and tubes to be joined were all POLYMERIC. There is no teaching of the undesirability of sagging of long lengths of polymeric tubes which do not have an outer metallic sheath. This was simply not appreciated at that time. While the connection was rendered more leak-proof by changing the composition of the joining connector to match that of the polymeric tubes, the concept of employing a metallic outer tube over a polymeric inner tube for long lengths of tubing typically seen in basements of homes, was certainly not envisioned under the '125 patent. And it certainly was not taught.

It is also misleading to state that Figures 1-2 of the instant application are identical with regard to the connection means (20) to Figures 1-2 of the '125 patent, which illustrate the claimed steps (a) – (d). It is correct that the connection means is similar, but the tubing which is being joined is different. The tubing which is referred to in Rowley '125 has no metallic sheath. These tubes were simply homopolymers or copolymers. There was absolutely no appreciation in 1999 of the problem which was solved in the instant application, namely to render the basement plumbing as consistent as possible with that of traditional soldered copper tubing. The product of '125 had to sag as the lengths of the polymeric tubing became longer or as they filled with water, one of the heavier liquids used by the population.

As clearly shown in the Summary of the Invention of the instant patent application, it states.

“In another principal aspect of the present invention to eliminate the inherent “sagging” of an all-plastic connector system.”

In fact, in a preferred embodiment of the invention of the instant application, the connector which is used is not polymeric as taught in Rowley '125, but rather is metallic has been known in the prior art. This is also clearly shown in col. 2, lines 45-52 where it is states.

“These and other advantages of the present invention are provided by the present invention, which comprises a tubing assembly, comprising at least two polymer-lined metal tubes, a metal tubing connector, and a plurality of crimp ring members. Each polymeric-lined tube has a tube end and an internal conduit. A connector, typically metal, is for joining the at least two tubes.”

The instant invention was not designed as chrome-plated copper tubes with polymeric inner liners as taught in Rowley '200, nor is the invention to be found in Rowley '125 which combines various lengths of polymeric tubing together. Rather, the invention resides in eliminating the need for soldering of copper pipes together. This is accomplished by adding a polymeric inner liner which allows for joining of sections by crimping onto a connector, yet retaining the aesthetic non-sagging aspects of copper plumbing.

Perhaps the last paragraph of the Background of the Invention states it best.

“[0005] Therefore, what has been lacking in the industry is a fluid connector system which capitalizes on the ease of installation and connection of lengths of polymeric tubing using crimp rings but which sags excessively, with the professional look of copper without the need for soldering copper connectors. The system of the instant invention capitalizes on the best elements of both systems, namely the professional look of copper installations with the ease of connection of polymers using crimp rings. This is an advantage provided by the present invention.”

The combination of references which the examiner has brought to bear on the issue fails to teach the invention of the instant application. The Rowley '200 patent teaches polymeric tubes which may be encased with copper, but each tube is taught to have an end formed from the walls of the tube. It is not proper to eliminate the end-formation teaching (either compressive processing or belling radial expansion) from the teaching of this patent. The Rowley '125 patent teaches how to join polymeric tubes with connectors and crimp rings, but there is absolutely no copper covering on any polymeric tubes. In fact, as stated above, the reason for the instant invention was to eliminate the sagging associated with all-polymeric waterway systems. While the wisdom of hindsight is enticing, it should be noted that Rowley, a common inventor between all patents and/or applications brought to bear on the claims of the instant application, had all of the tools

necessary to solve the problem no later than 1999, the filing date of the '125 patent. Even with all of the tools which the examiner has stated to be necessary to solve the problem, Rowley failed to appreciate the solution. In fact, it took an additional three (3) years for Rowley to seize upon the solution, a fact which predicates to the non-obvious nature of the instant invention.

Specifically, the examiner has rejected claims 21-23 and 25-27 of the pending application. Through amendment, the context of the invention has been added to the preamble, which distinguishes in a non-obvious patentable manner over Rowley '200 and '125.

The examiner has rejected claims 24 and 28 in light of Rowley '200. In light of the amendments made to the independent claims upon which these claims depend, this rejection is believed to have been overcome.

The examiner has rejected claims 1-2 and 29-30 in light of Rowley '200. In light of the amendments made to the independent claims upon which these claims depend, this rejection is believed to have been overcome.

The examiner has rejected claims 3 and 31 in light of Rowley '200. In light of the amendments made to the independent claims upon which these claims depend, this rejection is believed to have been overcome.

The examiner has rejected claims 5-6, 32-34 and 43 in light of Rowley '200. In light of the amendments made to the independent claims upon which these claims depend, this rejection is believed to have been overcome.

The examiner has rejected claims 7, 16 and 35 in light of Rowley '200. In light of the amendments made to the independent claims upon which these claims depend, this rejection is believed to have been overcome.

The examiner has rejected claims 8-11, 36-42 and 45-48 in light of Rowley. In light of the amendments made to the independent claims upon which these claims depend, this rejection is believed to have been overcome.

The examiner has rejected claims 4, 12-15 and 17-20 in light of Rowley. In light of the amendments made to the independent claims upon which these claims depend, this rejection is believed to have been overcome.

The examiner has rejected claim 44 in light of Rowley. In light of the amendments made to the independent claims upon which these claims depend, this rejection is believed to have been overcome.

Request for Reconsideration

Applicant believes that all independent claims clearly define over the prior art and that the distinctions between the present invention and the prior art would not have been obvious to one of ordinary skill in the art.

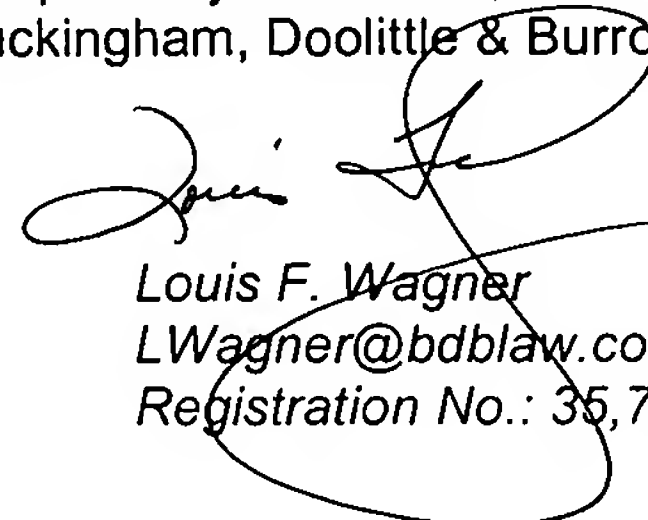
Additionally, the remaining dependent claims, by the limitations contained in the base independent claims, are felt to be patentable over the prior art by virtue of their dependency from independent claims which distinguish over the prior art of record. All pending claims are thought to be allowable and reconsideration by the Examiner is respectfully requested.

It is respectfully submitted that no new additional searching will be required by the examiner. A fee determination sheet is attached for this amendment response. The Commissioner is hereby authorized to charge any additional fee required to affect the filing of this document to Account No. 50-0983.

It is respectfully submitted that all references identified by the examiner have been distinguished in a non-obvious way. If the examiner believes that a telephonic conversation would facilitate a resolution of any and/or all of the outstanding issues pending in this application, then such a call is cordially invited at the convenience of the examiner.

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